COLONY OF THE GAMBIA.

THE REPORT

OF THE

DEPARTMENT OF AGRICULTURE.

FOR THE PERIOD 1ST APRIL, 1933 TO 31ST MAY, 1934.

Price 2/-

BATHURST:
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METEOROLOGY.

1. Though coast weather conditions during May and June were more or less normal the major portion of the Protectorate experienced very evenly distributed and heavy rains during June and early sown crops benefited accordingly. The longest dry period from the beginning of June to the end of September was during the first nine days of August. The more than usual even rains appeared to have affected the development of the groundnut shell which was found to break up more readily than usual.

2. Records are given below for two coast stations, Cape St. Mary and Bathurst, one middle river, Yoroberi Kunda, and one upper river, Wuli. Only rainfall months are given.

Months 1933.	Means. Cape St. Mary			Means. Yoroberi Kunda.			Means. Bathurst.			Means. Wuli.		
	Max.	Min.	Rain.	Max.	Min.	Rain.	Max.	Min.	Rain.	Max.	Min.	Rain.
May	80	71	—	106	72	1.12	81.8	70.2	0.01	103	77	2.29
June	86	73	3.07	91.6	74	12.32	83.9	72.3	4.08	90.6	74.8	10.21
July	86	73	16.20	92.2	73	13.93	83.8	68.6	17.57	87.1	73	13.38
August	85	73	13.20	91	72	6.79	85.7	73.2	16.36	87	74	9.73
September	86	74.3	5.32	90	72	9.57	85.7	70	7.79	88	74	17.59
October	85.5	73	5.21	93	71	1.79	87.6	73.9	6.37	93	63.5	3.65
November	86.3	64.6	0.37	92.8	66.5	0.23	83.7	71.4	0.50	89.0	71.5	1.35
			43.28			45.74			52.68			58.20

Locusts.

3. The country was spasmodically visited by swarms of locusts but very little damage was done. The absence of reports regarding hoppers indicate that there was apparently no breeding in the Protectorate and compared with previous years it appears that they are now on the wane. The country being so small and narrow however the situation in the Gambia cannot be taken as indicative of the larger territories around.

Veterinary.

4. A Veterinary Officer with assistants from Nigeria commenced the immunisation of cattle against rinderpest towards the end of 1933, South Bank Province being the area mainly touched. It was not till March that they were able to commence work on a very small scale in MacCarthy Island Province. The centre chosen in the latter was near the Agricultural Headquarters at Yoroberi Kunda and the opportunity was taken to familiarize the cattle men of the department by seconding a few to assist the Veterinary Officer.

5. After December rinderpest was reported as increasing in intensity in the Upper River Province but no details are to hand regarding losses. Indications are that they have not been as heavy as usual.

6. *Hides.* The hides exported from the Gambia leave much to be desired and efforts are being made by Government to improve the quality. The veterinary officer from Nigeria gave demonstrations in Bathurst on the preparation of hides as practiced in Nigeria.

Seednuts and Food.

7. As mentioned in the last Annual Report the Government have ceased to make seednut and rice issues to the people. The former has been replaced by the village seednut reserve scheme and the latter by propaganda to grow sufficient for their own needs. The seednut scheme has proved so successful that there was more than enough to meet requirements. It is possible that further experience may prove that some slight modifications in favour of the moving strange farmer population are desirable, but no doubt remains as to its general success.

8. There was no replacement to the rice issues beyond general propaganda to the people to grow more food which they were quite capable of doing. That they have increased their areas under food sufficient to replace the quantities previously given out by the Government is very doubtful, there appears to be a scarcity in some districts but complaints have been few. The people now appreciate that Government intend to carry out their policy.

Crops.

9. *Groundnuts.* In a few districts there was a slight reduction in the acreage devoted to groundnuts but this was compensated for by increases in many other districts. Weather conditions were favourable to a rapid growth and rosette disease as expected was only slight. Unfortunately the continued even rainfall to the end of September was against the formation of a normally hard shell. The effect of the latter was very noticeable in the heaps at the buying stations.

Harvesting in general took place in October and a good many stacks were in the field when a heavy storm occurred early in November. The people were immediately informed of the desirability of breaking the stack to dry them out.

10. *Food Crops.* The grain crops generally were up to normal though again in certain areas a partial failure of the Guinea corn was experienced. Though this failure is probably due to a certain extent to the weather experienced at the period of heading, the Agricultural Department Headquarters now being situated in the vicinity of an affected district and able to observe the affects, it is evident that some of the failure can be attributed to the very heavy infestation of the land with "silo" (striga spp), weeds parasitic on the roots of graminaceous plants particularly guinea corn. Control is very difficult and rotations though reducing the amount have no permanent effect, the seed rate of the weed being high and the seed viable over a number of years. The more industrious farmer who has absorbed the advice to weed more thoroughly is able to keep the pest within reasonable limits.

11. It is pleasing to record that particularly in the north bank of MacCarthy Island Province the Commissioner is able to report a much increased interest in the cultivation of Pigeon Pea and Cassava. Though the pigeon pea was introduced many years ago it was to all intents unknown to the majority of the people and those who had it never realised its value. Since the Agricultural Department commenced issues of their introduction the plant is being treated not as a curiousity to be grown near their huts but as a field crop that has a definite food value. The plant seeds from December to the end of February long after the farmer has reaped all his crops. In addition the plant is perennial and withstands the dry season extremely well. These points appeal to the people and once they have acquired the taste which appears necessary, the area under this crop should extend. Eventually they will realise its further and important value as a rotation crop.

12. *Cassava.* A most desirable and appropriate crop for the climatic conditions in the Gambia which does not receive the attention it deserves. Extension has gradually taken place in the past two years and the Department hope to accelerate this by issues of material in some districts.

13. *Ragi or Finger Millet* (Eleusine corocana) which was introduced by the Department in 1930 has done so well on the experimental stations that small issues are being made for tentative trials in the hands of the farmers.

14. *Rice.* A recent introduction of Guiana Creole rice from Nigeria has proved so successful that many demands have been made for more seed. This is being done.

Trade Season.

15. *Groundnuts.* There was no fixed date for the opening of the trade season but firms generally did not commence purchase of groundnuts until December, 1933. Prior to this month however there was quite a good deal of trading by Africans and Syrians. There is a little doubt that the major portion of these transactions were payments for debts and not actual direct cash transactions.

16. No actual figures are to hand but the amount of groundnuts purchased during the season approaches 70,000 tons.

17. *Beeswax.* This product is purchased by the firms during the wet season. All the African does is to take the hive, squeeze out the honey, and the remainder is sold. It is obvious that the residue will vary much in wax content and samples tested have given from 3 per cent to 27 per cent. In an endeavour to overcome this and get the people to clean their wax prior to sale the Department commenced buying with the idea of preparing more or less clean wax under conditions that the African could easily adopt. Unfortunately the purchases made were insufficient for an adequate trial, submission for examination and report in England. A further effort will be made in the coming season.

Produce Inspection.

18. It is not the policy of Government nor has it the staff available to undertake extensive and detailed produce inspection, but a certain amount of general inspection is nevertheless performed. One African was detailed for inspection in Bathurst. At Basse the African overseer carried out inspection in addition to other duties.

From headquarters it was possible to control inspection in Georgetown but only occasional visits were possible to other ports.

Departmental Stations.

19. *Headquarters, Yoroberi Kunda, MacCarthy Island Province.*

The following officers were in charge of this station Mr. J. Pirie, Agricultural Superintendent from 1st April to 6th October, 1933. Mr. F. W. Hall, Senior Agricultural Superintendent 7th October, 1933 to 31st May, 1934.

20. During the period under review the removal of headquarters from Cape St. Mary to Yoroberi Kunda was completed except for the main store which for the time being, in view of proximity to Bathurst, remains at Cape St. Mary. At Yoroberi Kunda a house has been erected for an European, a two roomed office, a large store and open shed, cattle sheds, quarters for African staff and also for a few cattlemen and labourers. More quarters are still required for Africans. The whole of this work has been carried out by the Department and, with the addition of opening up a new farm particularly heavy with scrub, making roads, fencing and generally endeavouring to get the firm into swing with the least possible delay, it has been an extremely trying time for the European staff. £850 was allotted for

house, office, store, furniture and water tank. With materials from the many scattered unused stores of the Department it was possible to erect fairly reasonable buildings with galvanized iron roofs. All brickwork had however to be done with sundried bricks with a coating of cement for protection.

21. A fairly large area was stumped and ploughing operations commenced for the first time in the Protectorate.

22. Several types of ploughs were tried out, from England, France, and Nigeria. In addition ploughs were made by the Department based on Indian models. The Nigerian ridging ploughs were too heavy for our small straight-backed cattle. Of the single furrow ploughs from England the "W. T. S." appeared to be the best for the cattle though, unless the ground was fairly moist, a little heavy for them. Being however the first time the cattle had been tried in a plough they worked very well. This plough and the "Mysore" and "Jat" made by Ransomes Sims and Jefferies arrived a little late for adequate trial. Other and lighter types are to be ordered for trial. For ridging the small all-metal Beauvais cultivator with ridging attachment works well.

The locally made Indian ploughs worked very well and with these and the Beauvais the major portion of the ploughing was carried out.

23. Comparison with hand labour showed the cattle cultivation up in a very favourable light. Roughly speaking, ploughing to a depth of about five inches with a single furrow plough, two pairs of cattle completed an acre in a day. The African using his native plough hoe, ridging the land in which he only digs one third of the land about two inches deep, requires eight days to do an acre.

24. The problem that requires most attention, however, is the flat cultivation carried out by the African farmer. This is never dug, his crops being sown after all the bush and dry weeds have been burnt off. It is the type of cultivation under which most of the guinea corns and bulrush millet are grown in addition to a large area of groundnuts. The majority of the food crops are sown just before the rains break and groundnuts immediately after sufficient rain has fallen to thoroughly moisten the soil.

25. Apart from these ploughing trials no plot experimental work was carried out, land, as stumping was completed, being put under graminaceous crops to observe fertility gradient etc.

26. It was observed that the major portion of the farm was badly infested with "silo" (Striga spp) and the grain crops suffered because of this.

WULI EXPERIMENTAL STATION BASSE UPPER RIVER PROVINCE.

27. Mr. J. W. Sparrow, Agricultural Superintendent, was in charge from 1st April to 7th October, 1933. Mr. J. Pirie from 14th October to November, 1933, after which date no European was resident.

28. Headquarters not being sufficiently far advanced to undertake the plot experimental and selection work the programme was not curtailed at this station.

29. *Groundnut. Sowing date and Spacing trial.*

This trial was a continuation of the previous year and again, yield results and percentage of rosette favoured the earlier and closer spacings. Each season this trial has been conducted the weather has not been favourable to the incidence of rosette but from them it may be gathered that 1′ x 1′ spacing and sowing between 23rd June and 7th July is to be recommended, to obtain maximum yields with the minimum of disease. June sowing of course is not recommended if the rains have not broken properly. Should the rains be very late and plantings be delayed after the 7th July then there is no alternative but to expect comparatively small yields.

30. *Groundnut. Ridge versus Flat Cultivation.*
This was altered to include two sowing dates instead of one as in previous years. Results remain the same there being no significance between the methods of cultivation. On the other hand the sowing dates were significant the 1st July sowing given 2824lbs to the 1944lbs from 14th July sowing, an indication of the effect of delay in sowing for only 14 days.

31. *Groundnut. Variety Trial.* Of the varieties grown there was no significant differences in yield between Basse, Senegal, Coniagi and Gambian, but Philippine White was significantly inferior to the two former and barely so to the remainder.

32. *Mixed Cropping Trial.* This was reversed to previous years the basic crops being grains and interplanted with groundnuts. The Guinea Corn and Bulrush Millet failed to give a reasonable stand to allow of statistical treatment.

33. *Dwarf Millets Trial.* In this yield tests of five varieties of Eleusine corocana, one variety of Banicum and two varieties of Setaria italica were the objective.

The Panicum and Setaria suffered rather badly from depredations by birds the former especially. Setaria gave an average yield of 490lbs to the acre, and the Eleusine where there was no significant difference between varieties averaged 1200lbs to the acre.

34. *Maize Sowing Date Trial.* The native seed was used and three sowings made i.e., 1st June, 20th June and 11th July. Average yields were 1950lbs, 1414lbs, and 1177lbs per acre respectively, significant differences in favour of early sowing.

35. *Selection Work.* Work was continued on the groundnut selections and hybrids, many further discardings taking place. Native and Cambodia cottons, Gambian and Anveld maize, rices, and pulses all received attention in this direction.

36. *Increase.* Pigeon Peas, Groundnut selections, pulses, sweet potatoes, cassava and cover crops were grown for increase.

IRRIGATION.

37. *Basse, Upper River Province.* Irrigation was continued in the small area near the market town. Rice was the chief crop tried. Unfortunately adequate supervision was impossible and the whole work had to be more or less left in the sole charge of an African. The rice was a failure for what reason it was difficult to say but it appeared to be either an excess or lack of water, the rice headed but no grain set.

38. *Georgetown, MacCarthy Island Province.* This was controlled from Headquarters and very successful rice yields were obtained. Some plots were broadcast, others transplanted while varying quantities of cow manure were applied to some at rates varying from 1 to 4 tons to the acre. Though not large enough to lay out for statistical treatment it appeared that 1 ton of manure to the acre gave just as good results as 4 tons. Other plots where grass and similar humus was dug in were inferior. Transplanted rice was infinitely superior in yields giving an average of 1600lbs. of paddy per acre as against 600 for broadcasted.

39. *Doniajoe, North Bank Province.* It was hoped to have inspected sites in both North Bank Province and South Bank Province in time to prepare areas for the 1934—35 season. This, however, was not possible and work was concentrated at Doniajoe in North Bank Province where a suitable undulating valley site was selected. Here several beds covering nearly four acres were formed on each side of a stream all capable of being irrigated by means of seepage water from the surrounding gently sloping land and, if necessary—should short rains only be experienced and

reduce the quantity of seepage—by means of shadoof. The situation chosen is typical of rice fields in the East and is a very useful demonstration area for methods of irrigation other than by manual lift.

The Department are using it during the coming rains for early rices so that it will be available at an early date for dry season work.

STAFF.

40. The following are the principal staff changes and movements during the period under review.

Mr. F. W. Hall, Senior Agriculture Superintendent, was on leave from 4th May to 20th September, 1933.

Mr. J. Pirie, Agricultural Superintendent, proceeded on leave on 4th May, 1934.

Mr. J. W. Sparrow, Agricultural Superintendent, proceeded on leave on 20th October, 1933, and retired on grounds of ill health on 10th May, 1934.

Mr. E. Williams, Agricultural Superintendent, arrivde on first appointment on 10th May, 1934.

Mr. John Touray, 3rd Grade Overseer, resigned on 1st May, 1933.

Mr. E. J. Maurice, 3rd Grade Overseer, retired on pension on 20th November, 1933. These two latter were replaced by probationer overseers.

41. The staff of the Department as it now stands is as follows :—

3 European officers
1 African clerk
1 3rd Grade Overseer
2 Interpreters
1 Storekeeper
2 Probationer Overseers.

The Interpreters and Storekeeper are mainly employed on overseers' duties.

Practically throughout the whole period only two Europeans were resident both of whom by force of circumstances were more or less tied down to two stations. No tours could be undertaken until November, 1933, and then only to find sites for irrigation.

42. The staff are to be thanked for the way in which they carried out their work so well under such trying conditions especially Mr. Pirie who, in addition, had to undertake major works only indirectly connected with agriculture.

F. W. HALL,
Senior Agricultural Superintendent.

20th July, 1934.